DOCUMENT RESUME

ED 032 536 24 AL 002 095

By-Garvey, Catherine; Baldwin, Thelma L.

A Self-Instructional Program in Standard English: Development and Evaluation.

Johns Hopkins Univ., Baltimore, Md. Center for the Study of Social Organization of Schools.
Spons Agency-Office of Education (DHEW), Washington, D.C. Bureau of Research.
Report No-R-50
Bureau No-BR-6-1610
Pub Date Sep 69
Grant-OEG-2-7-061610-0207
Note-69p.
EDRS Price MF-$0.50 HC-$3.55
Descriptors-*Course Evaluation, Grade 5, Language Instruction, *Material Development, *Negro Dialects, Nonstandard Dialects, *Programed Instruction, Standard Spoken Usage, *Teni

This report describes the design, production, and evaluation of the first six lessons of a self-instructional program in standard English. The program is designed for use by fifth-grade students in Baltimore who are speakers of Baltimore non-standard Negro English. The six lessons were developed, pre-tested, revised, and evaluated in an attempt to assess the effectiveness of the program and to provide a more empirical basis for further development of instructional materials for the particular student population. A mastery test, constructed to measure the objectives of the lessons, successfully discriminated between the students receiving the programed instruction and a control group. Furthermore, the evaluation resulted in specific suggestions for program improvement. (Authors/DO)

ED0 325536

BR-6-1610
Report #50
PA-24
OE/BR

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL OFFICE OF EDUCATION POSITION OR POLICY.

THE JOHNS HOPKINS UNIVERSITY

REPORT No. 50

THE CENTER FOR THE STUDY OF SOCIAL ORGANIZATION OF SCHOOLS

A SELF-INSTRUCTIONAL PROGRAM IN STANDARD ENGLISH: DEVELOPMENT AND EVALUATION

AL 002 095

CATHERINE GARVEY

AND

THELMA BALDWIN

SEPTEMBER, 1969

A SELF-INSTRUCTIONAL PROGRAM IN STANDARD ENGLISH:

DEVELOPMENT AND EVALUATION

Program No. 61610-04
Grant No. OEG-2-7-061610-0207

Catherine Garvey

and

Thelma L. Baldwin

September, 1969

Published by the Center for the Study of Social Organization of Schools, supported in part as a research and development center by funds from the United States Office of Education, Department of Health, Education and Welfare. The opinions expressed in this publication do not necessarily reflect the position or policy of the Office of Education, and no official endorsement by the Office of Education should be inferred.

The Johns Hopkins University
Baltimore, Maryland

ACKNOWLEDGMENTS

The work described in this report was a joint effort on the part of the Program for the Study of Standard Language Acquisition. The program staff contributing to the production and evaluation of the materials were, in addition to the authors of this report, Mr. Edmund Anderson, Miss Susan Bunch, Mrs. Anne Cole, Mr. Joseph Giles, and Dr. John Guthrie. We are indebted to the Baltimore City Public School System for its cooperation in this research. In particular we would like to acknowledge the assistance of the principals and teachers in the two participating schools. Special thanks are due the students who willingly cooperated in the evaluation of the materials.

ABSTRACT

The report describes the design, production and evaluation of the first six lessons of a self-instructional program in standard English. The program is designed for use by fifth-grade students in Baltimore who are speakers of Baltimore, non-standard, Negro English. The six lessons were developed, pre-tested, revised and evaluated in an attempt to assess the effectiveness of the program and to provide a more empirical basis for further development of instructional materials for the particular student population. A mastery test, constructed to measure the objectives of the lessons, successfully discriminated ($p < .05$) between the students receiving the programmed instruction and a control group. Furthermore, the evaluation resulted in specific suggestions for program improvement.

CONTENTS

Acknowledgments	ii
Abstract	iii
I. Introduction	1
II. Part I: Description of the Program	4
1. Content	7
2. Lesson format	12
3. Modes of student-program interaction	14
4. Presentation equipment and student activity	18
5. Production of program materials	23
III. Part II: Evaluation of the Program	24
1. Method	25
2. Results and discussion	27
3. Summary and conclusions	38
Figure 1.— Classes of events occurring within the frame	14
Figure 2.— Student Console of the Portable Laboratory System	19
Table 1.— Sample of Performance Data on Sequence Criteria	29
References	40
Appendix A	A1
Appendix B	B1

Introduction

When a speech community recognizes a standard language, that language is usually the one employed for official and technical functions. In discussing the role of second language in national development, Stewart (1962) points out that an official language is frequently employed for educational purposes and "for wider communication within the nation." Within the larger speech community, standard and non-standard varieties of speech are assigned higher and lower prestige values. These values and the associated norms are recognized not only by the speakers of the valued dialects, but by the speakers of the lower prestige dialects as well. Evidence of the recognition of such norms for American English speakers across the boundaries of social and class dialects is presented by Labov (1966) and by Tucker and Lambert (1969).

By virtue of the common recognition of such norms, speech varieties may take on the role of indicators of social stratification (Putnam and O'Hern, 1955). A study by Buck (1968) suggests that listeners may be able to make judgments on the competence of speakers independently of judgments on the speakers' ethnic membership on the basis of standard and non-standard speech samples. The non-standard speaker is judged low on the 'responsibility scale' as Joos remarks in his essay on the functional aspects of speech varieties (1967). It is likely that the monodialectal speaker of a non-standard speech variety is faced with serious restrictions in the extent to which he can take advantage of social, occupational and educational opportunities.

Thus, there is widespread agreement on the view that a command of standard English could serve as a dialect of wider communication for individuals who would otherwise be restricted to the more limited opportunities of their social class subgroupings. There is less agreement on how that command can be acquired. Some language teachers (Allen, 1968) are optimistic that a teacher armed with an understanding of the functions of social dialects can impart a command of standard English to speakers of a divergent dialect by the use of well-designed classroom drills. Labov and Robins (1969), however, raise the question of the conflicting values associated, respectively, with the school and with the peer group culture; their study suggests another dimension which may affect the success of school-based training on the acquisition of a command of standard English.

The schools assume that standard English "must be taught and should be learned" (Allen, 1968, p. 210). There is some doubt, however, that classroom drills, engaging each student's active participation for a maximum of five minutes per day, can effectively influence the production of new language patterns. The task of acquiring a functional command of a new dialect is difficult and time consuming. Furthermore, the requisite activities must, in the classroom, compete with other curriculum demands. A possible approach to the instructional problem is by means of an intensive, self-instructional program which assumes the basic activities of language instruction: presentation of structural relationships, discrimination training, oral production and practice. The approach

to the problem of creating a favorable attitudinal orientation to learning a second dialect should probably include the following elements: (a) clear identification of the standard dialect as 'special purpose dialect' and of the objective of learning as an instrumental objective; (b) practice in switching between the standard and non-standard variety in response to meaningful clues in the speech situations presented; and (c) use of production models identifiable to the students as standard speakers of the students' ethnic group.

This report describes the design, production and evaluation of the first six lessons of a self-instructional program in standard English. The program is designed for use by fifth-grade students in Baltimore who are speakers of Baltimore, non-standard, Negro English. The six lessons were developed, pre-tested, revised and evaluated in an attempt to assess the effectiveness of the program and to provide a more empirical basis for further development of instructional materials for the particular student population. The six lessons represent approximately one week of instruction in a projected program requiring thirty weeks for administration. The report will be divided into two sections. The first section will contain a description of the program. The second will be devoted to the procedures and results of the field evaluation of the program, which was conducted in the public schools.

Part I: Description of the Program

There are several important characteristics of the program, the preliminary listing of which will serve to relate the rationale and approach to the following more detailed description of its structure.

First, the program is designed for a specific student population. The program should thus be considered a prototype program tailored to the needs of a certain group of school children and would, following evaluation, be adaptable to other groups by means of specific changes in content, instructional emphasis, and, to some extent, programming and presentation techniques.

The present target population is fifth-grade, Negro, Baltimore, inner-city school children. The major characteristics of this population which the program takes into account are: (a) the linguistic code as manifested in different functional or situational styles used by the children; (b) the general level of reading ability; (c) topics of interest, or familiarity with areas of content; (d) such learning characteristics as may effect presentation and program design features. These population characteristics were empirically derived in the case of (a) (b) (c) by preliminary research (Garvey & McFarlane, 1968). Information on the learning characteristics of the population (d) comes primarily from two sources. The first source is observation and analysis of student performance on early versions of the program. The second source is experimental work now in progress on the effects of presentation and application of grammatical rules (Guthrie & Baldwin, 1969) and on the role of feedback in oral production training.

Second, the materials are programmed for individualized, instructor-free administration. For purposes of research this format considerably enhances the possibility of evaluating the instructional content and many components of the presentation, since input to the student is constant and responses to each step of instruction can be observed and recorded. Thus, through successive revisions, the program can be more effectively adapted to the student population. From the point of view of developing an effective instructional system, the programmed self-instructional format here employed offers the following advantages:

(a) Instruction is relatively intensive, as measured by the number of stimulus items presented and the number of responses required per student in a given period of time. In one lesson in this program, for example, a student hears in the average running time of 25 minutes a minimum of 75 auditory samples or models, 42 auditory alternatives, and produces 48 oral responses.

(b) Some accommodation to individual learning strategies and individual needs for repeated auditions can be made. For example, the student may under certain conditions request replay of an auditory sample or of auditory alternatives. In the lesson cited above, the student has 31 options for requesting replay. As a consequence of this feature and of the student's control over his speed of responding, the time required for the completion of this lesson ranged from 20 minutes to 30 minutes.

(c) The provision of corrections or confirmations can be made contingent on the individual students' discriminatory responses. If, for example, the student makes an error, he may hear a

correction (30 times in the lesson cited). When he makes the correct choice, he will hear a confirmation (11 times in the lesson cited). A recorded confirmation may also follow on an oral production response.

(d) The format provides for a constant and consistent model of the target language.

(e) There is the opportunity to present contrasting features of the standard code and the non-standard code represented in the student's own speech. This feature is essential to the instructional approach of the program, but few classroom teachers can be expected to have adequate production skills in the non-standard code.

Third, the spoken, standard English which is the target language is presented as a variety of speech appropriate to certain situations. It is contrasted on specific dimensions, mainly grammatical, to the variety of the non-standard code which was derived from study of the student population. The situations in which one code or the other is labelled appropriate vary on dimensions of age and relationship of speakers, physical setting, and topic. Responses in both codes are produced by the student as appropriate to a given situation. The majority of oral responses required are, of course, in standard English, but the ability to switch codes in response to cues from the speech situation is one of the behavioral objectives of the program.

Fourth, the structure of the program is cyclical rather than purely linear. In other words, content and skills are ordered to build toward specified objectives, but are progressively reintegrated

into larger blocks of content and into more complex skills. For example, production of word final consonant clusters is subject to drill in Modules 4 and 5. Noun plural forms are also introduced there as the context for production of the consonant clusters. In Module 6, the emphasis of instruction is the production of the different classes of noun plurals. Thus, final consonant clusters are reviewed and produced in a different context. In a later module, production of third-person singular, present-tense verb forms and certain past-tense verb forms will require review and further integration of word final consonant clusters into the verb phrase. Similarly, as a grammatical feature is introduced, the differences between Baltimore, Negro, non-standard English (BNNE) and standard English (SE) in respect to that feature are labelled as 'Casual' or 'Formal.' Modules will be interspersed in the sequence of instruction to provide practice on producing equivalent messages in one or the other code. Thus, while providing review of grammatical forms, these modules integrate the previous grammatical training into the more complex activity of switching from casual to formal or formal to casual speech.

1. Content

A distinction can be made between the selection and arrangement of the content of the program and the subsequently derived behavioral objectives of each module. The behavioral objectives, which define the behaviors required and thus structure the presentation of the content, will be discussed in section 2 below. The selection of the

content reflects the major structural differences between the BNNE code and the SE code. At this point, it is necessary to explain in greater detail how the codes are defined and what styles of speech are contrasted.

All speech communities distinguish a number of different, socially defined speech situations and recognize a number of speech varieties or styles which are appropriate for speakers to use in those situations. A widely recognized distinction, of relevance here, is the distinction between public speech and private speech or speech appropriate to strangers in a public situation and that appropriate to intimates.

All speech communities also recognize a distinction between more-valued and less-valued speech. The distinction here is between standard and non-standard codes. The code is defined by the co-occurrence of phonological and grammatical features which, of course, may vary in frequency or percentage of occurrence according to the speech style observed. Restricting the example to Baltimore speech, it is possible to isolate a Negro standard which differs from a white standard primarily on phonological dimensions. Furthermore, there is a Negro non-standard and a white non-standard code which differ from the standards and from each other on both phonological and grammatical dimensions. The characteristics of the various functional styles recognized for each code have by no means been carefully documented.

The corpus of speech from which the linguistic code of the student population was derived represents only a small sample of the speech styles which are probably available to the children. Recordings were

made of fifth- and sixth-grade children under the following conditions (listed in rough order of decreasing formal constraint): verbatim repetition of sentences, reading aloud, answering questions in an interview, recounting stories of TV shows and telling personal narratives, playing a simulation game with friends. Grammatical and phonological features which, in varying frequency, appear under all conditions are taken to be characteristic of the code, though not necessarily the sole defining features of the code. It should be noted that the emphasis has been primarily on the public or more formal style of BNNE, since it is actually the standard and non-standard codes that are contrasted in the instructional program. The content of the program, then, is composed of those structural features on which the standard and non-standard codes are distinguished.

The content must be ordered for sequential presentation in instructional modules. An attempt was made to analyze major sentence components into lower order constituent grammatical structures. In the sequence of presentation the lower order grammatical structures are presented before they are embedded in higher order structures. Such sequencing becomes important in an instructional format in which neither the student nor the program can be expected to correct errors in production which are not the focus of the specific instructional task at hand. For instance, the SE feature of marking for agreement of certain verb forms with the number of the subject is not obligatory in BNNE. This subject-verb agreement is presented before other more complex features of verb phrase structure are taken up, since this morphological feature occurs not only in simple verbs (e.g., 'he does,' 'they do') but

in a number of differing syntactic constructions (e.g., 'does he know?' 'doesn't he know?' 'do they know?' 'don't they know?'). Without previous practice on subject-verb agreement marking, the student can practice the interrogative structure of the verb in an embedded clause and may receive confirmation for production of the correct order (e.g., SE 'Ask him what he present-tense verb.') while simultaneously producing the BNNE morphological form of the verb (e.g., 'Ask him what he do.').

A second consideration, particularly relevant to phonology, is the scope of a feature. In BNNE there is a tendency for certain consonants or consonant clusters to be lost or modified in specific phonological environments. The effects of this tendency result in a higher number of homophonous lexical items than SE shows (e.g., SE 'guest' and 'guess' correspond to a single BNNE form [gɛs][1]). A more critical result is the effect of this tendency on inflectional markers (e.g., SE 'passed' and 'pass' correspond to a single BNNE form [pæs]). The scope of this feature of phonology extends to the plural and possessive markers of nouns, to third, singular, present-tense and past-tense markers of many verbs and to the contracted forms of many modal and auxiliary verbs. Thus, the scope of the feature suggests that extensive practice at an early point in the program would facilitate subsequent acquisition of the several grammatical forms requiring presence of terminal consonants or consonant clusters.

---

[1]Brackets will be used to enclose BNNE forms when the phonological shape of the form is cited.

Only a small fraction of the projected linguistic content for the fifth-grade level of the program is represented in the first six lessons which have been evaluated. Following a program familiarization sequence of two lessons, the remaining four lessons concern properties of the noun phrase. The content of the first six lessons (modules) is as follows:

Module 1 presents an introduction to the concept of language variation, using examples from Chinese, Spanish and English. Within English, regional or geographical features as well as features linked to characteristics of the speaker, such as age, can be recognized from lexical, grammatical or phonological clues. This information is presented in such a way as to accomplish the major objective of Module 1, which is to familiarize the student with the operation of the equipment and the different instructional modes.

Module 2 presents the concept that messages may have similar meaning but show a difference in form. Two varieties of English, 'Formal' and 'Casual' are identified as 'appropriate' or 'inappropriate' to a situation. The content samples from a number of salient differences between standard and non-standard speech.

Module 3 has as its objective the differentiation of the indefinite article into the two conditioned alternants of SE, 'a' and 'an' and the use of these in noun phrases (e.g., 'a Russian astronaut,' 'an American astronaut.').

Modules 4 and 5 deal with word final consonants and consonant

clusters which are subject to reduction in BNNE and which underlie formation of SE noun plurals (e.g., -st, -sts in 'guest,' 'guests'; -l, -lt, -lts in 'coal,' 'colt,' 'colts'). Module 6 focuses on regular noun plurals and sub-groups of irregular nouns, which have different members in BNNE and SE (e.g., BNNE 'foots,' SE 'feet'; BNNE 'mouses,' SE 'mice').

2. Lesson format

The structure of each module reflects the analysis of behavioral objectives for the linguistic content of that module. In general, a module has several sequences which build toward a terminal objective. Each sequence is constructed of tasks which contribute to the objective of the sequence. Tasks are composed of individual frames. Each sequence, as well as the module itself, is terminated with criterion frames (i.e., frames that test the accomplishment of the objectives).

This structure forms a general guideline for the specification of objectives. The linguistic content is ordered in increasing complexity and according to structural prerequisites (e.g., the production of many noun plurals presupposes the ability to produce the consonant clusters arising from addition of an allomorph of the regular plural marker). However, the design for a module must also specify the behaviors to be taught and the conditions under which the behaviors are elicited. For example, the objective of Module 3 is the production of SE 'a' or 'an' elicited under the following conditions:

(a) Given a sentence with an indefinite article preceding a consonant-initial (or vowel-initial) word, substitute a

vowel-initial (or consonant-initial) word and say the sentence using the appropriate form of the indefinite article.

(b) Given a picture, say: "That's a _____," or, "That's an _____."

Two sequences lead to this behavior. The objective of the first sequence is for the student, after hearing a noun and seeing the written words 'a' and 'an,' to choose the correct form of the indefinite article and repeat the phrase (e.g., he hears 'onion,' chooses 'an,' hears 'an onion' as a confirmation, then repeats 'an onion.'). Tasks preceding this sequence include discriminating between 'a' and 'an' and discriminating between words with vowel-initial and consonant-initial sounds under a variety of stimulus conditions.

The objective of the second sequence is for the student, after hearing a noun phrase with no indefinite article, to add the appropriate form of the indefinite article and say the phrase (e.g., he hears 'open door' and says 'an open door'). Tasks preceding this sequence involve the production of noun phrases with indefinite articles under gradually more difficult conditions of elicitation. One of these conditions, which illustrates the 'spiral' nature of the program mentioned earlier, is for the student, after hearing a noun phrase in casual speech, to produce that phrase in formal speech. Thus, he hears 'a ambulance' and an instruction to change it to formal speech, and he says, 'an ambulance.'

The format of each module may differ with the analysis of the objective. Depending on the content and the interim and terminal behavioral objectives the following components may be required:

(a) introduction or differentiation of a grammatical concept; (b) preliminary auditory discrimination training, within standard English or between SE and BNNE; (c) association of auditory elements with visual symbols; and (d) step-wise production training or production practice.

3. Modes of student-program interaction

The programming approach takes into account three sequential classes of events. The first class is composed of the stumulus situation, the second of the required response and the third of the response contingencies. Not all combinations and sequences of the events listed in Figure 1 are utilized in the program.

Stimulus Situation	Response Required	Response Consequence
Auditory sample	Reading or listening to instruction	Buzzer (error signal)
Visual sample	Verbal production	Buzzer and correction
Auditory and visual sample	Choice of auditory alternative	Confirmation
Auditory instruction	Choice of visual alternative	Confirmation and instruction to speak
Visual instruction		Confirmation, instruction to speak, and confirmation
Auditory and visual instruction		

Figure 1. Classes of events occurring within the frame. Note: auditory alternatives, visual alternatives and auditory material in the stimulus situation may, under certain conditions, be replayed at the student's request.

In all, 31 modes, or arrangements of events in the student-program interaction, are employed. These fall into four major categories according to the type of primary response required.

(a) There are three presentation modes in which auditory, visual, or auditory and visual material is presented to the student and no overt discriminatory or production response is required. In two of the modes the student presses a button to advance the frame, in one the frame advances automatically. Such modes are used primarily to introduce a new term, to summarize a grammar statement or to present an array of items. These modes are used infrequently and usually occur at the beginning or end of sequences.

(b) There are eight production modes in which the student is required to produce an oral response. In four of these modes only one oral response is required. The model or instruction may be auditory, visual or auditory and visual. After the student's response, an auditory confirmation can be provided or the program may advance to the next frame immediately following his response. In the remaining four production modes, two oral responses are required. The sequence of events in these modes is as follows: the model or instruction may be auditory, visual or auditory and visual; the student responds; he then hears an auditory confirmation which may serve as a second model, or he may hear an instruction for his second response; he speaks again; he then hears an auditory confirmation, or the program advances to the next frame. Production modes may be interspersed throughout the modules. Most criterion frames are programmed in production modes.

(c) There are ten visual discrimination modes. In these modes the student makes a discriminatory response to one of two or three visual alternatives, which may be either pictures or written material. The response is made on the basis of an auditory, visual or auditory and visual sample. On an incorrect discriminatory response, the student hears either a recorded correction or an error signal. He must then make the correct choice. In six of these modes he has the option of replaying the auditory sample or instruction before his choice or after an incorrect response. The four remaining modes employ only visual samples and instructions and do not provide an auditory sample or instruction.

After the correct response has been made, two modes advance the program automatically, four provide an auditory confirmation before automatic advance and four provide a confirmation which also serves as a model for an oral production response which is contingent on the visual discrimination. Of these latter four modes, two provide a confirmation of correct choice in addition to the model for the oral production response. The visual discrimination modes are used primarily within sequences for identification tasks, such as selecting a written equivalent to an auditory sample or selecting a pictured situation appropriate to an auditory sample.

(d) There are ten auditory discrimination modes. In these modes the student makes a discriminatory response to one of two auditory alternatives. The response is made on the basis of an auditory, visual or auditory and visual sample. As in

the visual discrimination modes, several permutations of auditory sample (and sample replay), confirmation, correction, and oral production are possible. These modes have, however, the added features of auditory alternatives and optional replay of these alternatives.

In these modes the student receives an auditory, visual or auditory and visual sample. He then listens, in order, to each of the two auditory alternatives. In the four modes which have an auditory sample, he may then replay the sample. If he chooses to replay the sample, he must also replay both auditory alternatives. In the modes lacking an auditory sample (or when he does not play the auditory sample again), he may listen to either or both auditory alternatives as often as he wishes. He then chooses one of the alternatives. If he chooses incorrectly, he hears an error signal (in five modes) or a correction (in four modes) or the sample replays automatically (in one mode). At this point he may still replay the sample and alternatives or one or both auditory alternatives, or he may make the correct choice. After he makes a correct choice, he may hear a confirmation (in four modes) or a confirmation which serves as a model for an oral production response (in six modes).

These modes are used primarily within sequences for tasks such as matching an auditory sample with an auditory alternative, or for choosing an auditory sample equivalent to a written or pictured sample.

Each frame (or segment of instruction) is programmed into one of the 31 modes. Not all modes are utilized with equal frequency in any module since the specific objective of the frame determines the mode employed.

In summary, the student is presented (by means of equipment described in section 4 below) with a frame and performs the appropriate operation. After the student's correct discriminatory response and/or production response, the frame automatically advances to the next frame. A module contains approximately 60 frames, and requires from 25-30 minutes for completion. As was stated earlier, the program is entirely self-instructional in the sense that it requires no teacher or monitor assistance beyond the initial aligning of the materials in the equipment.

4. Presentation equipment and student activity

The device employed is a research model of a responsive teaching device.[2] The present version is composed of three units: a student console with microphone, a logic unit and a tape recorder. The student seated before the console sees a card (approximately 2 1/4" x 8 1/2 ") through a window (see Figure 2). Beneath the window are two bars. Beneath the bars are three buttons. To the right of the window there is a single button. Each button and bar can be lighted; the light is the student's signal to press that bar or button. Each press activates an audio message or other signal to the student or advances the program to the next card, depending on the programming mode of that frame. The microphone is an audio-active, voice-operated relay. It lights as a signal to the student that an oral response is required.

---

[2]The Portable Laboratory System, Appleton-Century-Crofts, New Century Division, New York, New York.

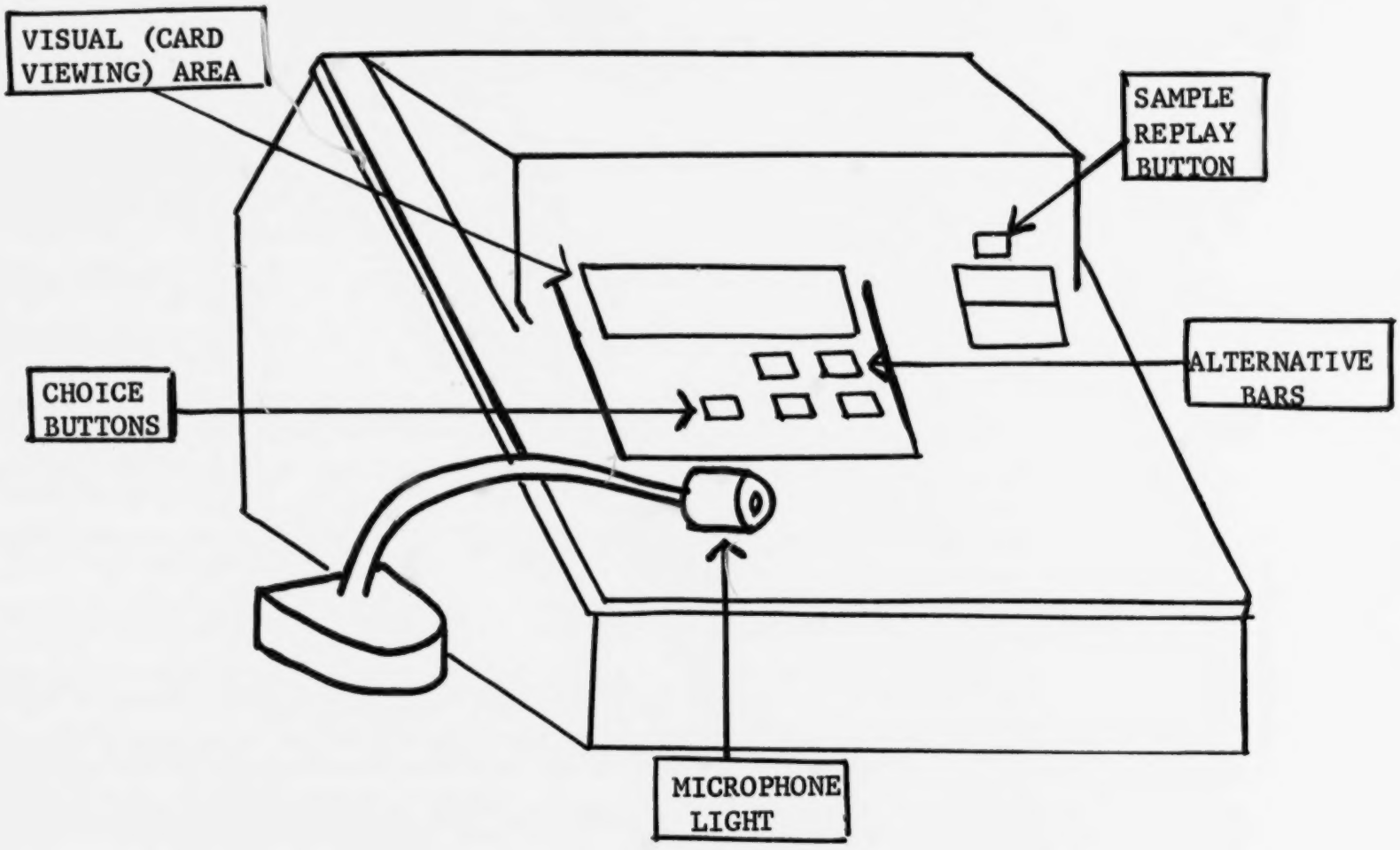
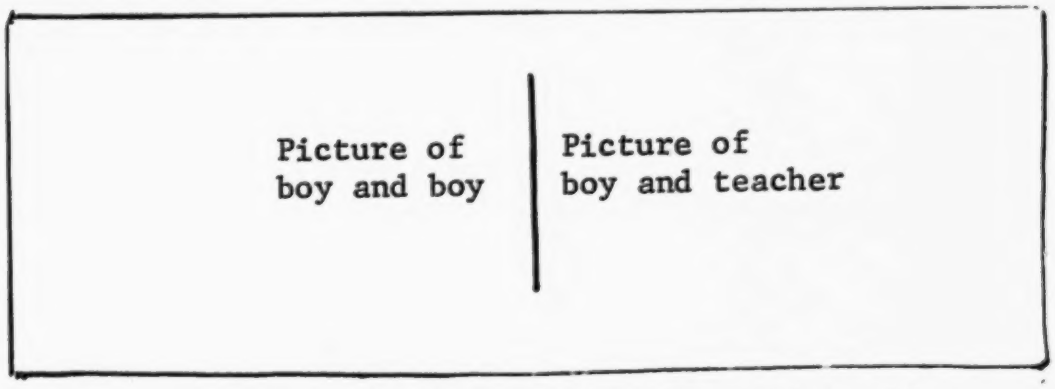


Figure 2. Student Console of the Portable Laboratory System.

A maximum of four recorded messages can be associated with the visual material presented on a given card. A card may be divided into a maximum of four sections. The arrangement of material on the card serves as a secondary signal to the student of the type of operation required in that frame.

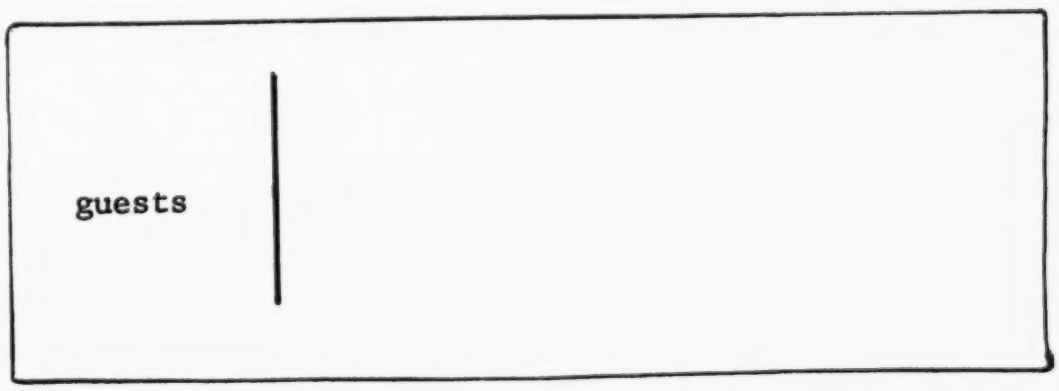
In a presentation frame, visual material is centered on the card and an audio message may play automatically:



Auditory sample: "Listen to the boy speak to his friend, and then to a teacher...'I ain't say that'; 'I didn't say that'."

The student reads, listens or looks. He may push a button to advance the frame, or the frame will advance automatically. Only 10% of the 379 frames of the program are presentation frames.

In a production frame, visual material is placed in the sample area (the far left quarter of the card):



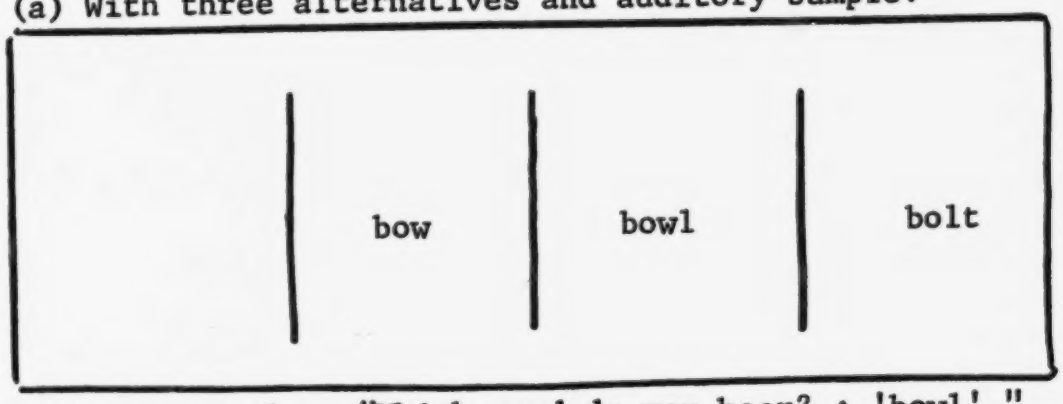
Auditory sample: "Repeat this word: 'guests'."

The microphone light comes on, the student speaks, and the program advances. Or, after he speaks, he may hear a confirmation and the program advances. In double production frames a confirmation and model plays after the student speaks. For example, after saying 'guests,' the student might hear: "Now repeat: 'We invited two guests'."

The microphone light then comes on a second time and the student repeats the sentence, after which the program advances. Single and double production frames together account for 34% of the frames.

In a visual alternative frame, two or three alternatives may be presented. The far left area is, as always, the sample area in which visual material may appear or a blank space (which signals an auditory sample). The near left area is for written instruction or for a third visual alternative. The two right areas are for alternatives:

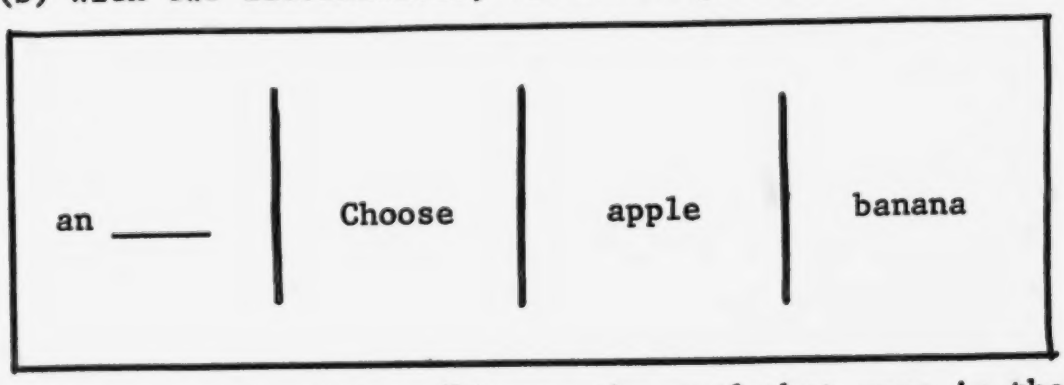
(a) With three alternatives and auditory sample:



Auditory sample: "Which word do you hear? : 'bowl'."

If the student presses an incorrect choice button, he will hear a correction and be required to choose again. When he chooses correctly, he may hear a confirmation, and the program advances.

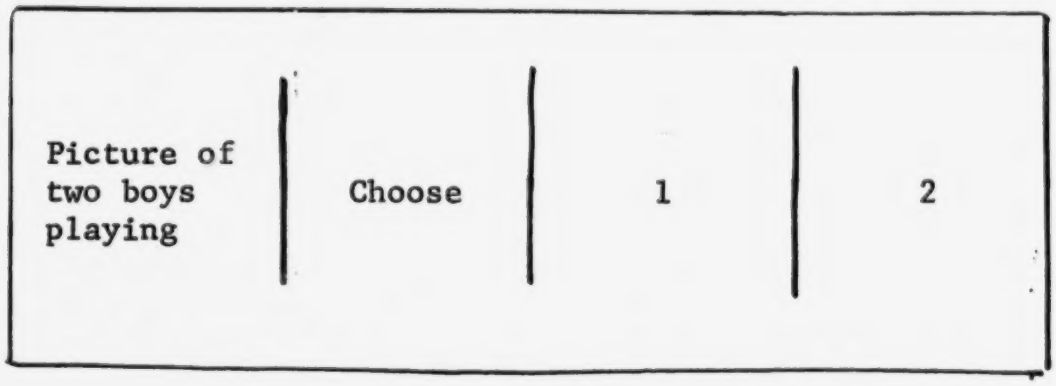
(b) With two alternatives, visual sample and written instruction:



Auditory instruction: "Choose the word that goes in the blank."

Visual discrimination frames account for 21% of the frames.

In an auditory alternative frame, two numbers corresponding to the initial playing order of the auditory alternatives are on the right-hand area of the card. The left-hand area is reserved, as usual, for a sample and an instruction. The example below has a visual sample and an auditory instruction, a written instruction and two auditory alternatives:



Auditory instruction: "Choose the utterance that fits the picture."

The student presses the alternative bar below 1 and hears: "Ask you mover can you go." He then presses the alternative bar below 2 and hears: "Ask your mother if you can go." (He can now replay the auditory instruction and both auditory alternatives, or he can replay one or both auditory alternatives). If he chooses 2 (incorrect), he hears: "The boys would probably use casual speech when playing together." He now must choose again. When he chooses 1, the program advances, or he repeats the correct alternative and the program advances. Auditory discrimination frames account for 35% of the frames.

The instructional system is thus composed of visual material, auditory material, modes of student-program interaction and the presentation device.

5. Production of program materials

The content and objective of each frame and its position in a task or sequence determines the mode into which it is programmed. After the frames have been written, the next step in production is the preparation of the cards and tape-recorded materials. This step was carried out by project staff with the assistance of an artist, who produced the drawings, and a bi-dialectal speaker of BNNE and Baltimore standard English, who recorded much of the auditory material. A member of the project staff performed the function of teacher's voice in the tape recordings while all messages in BNNF and pairs of messages contrasting BNNE and SE were recorded by the young, Negro, bi-dialectal speaker.

A preliminary version of each module was prepared and tested at the project's offices with four to six fifth-grade students. Their performance on each frame was recorded. Each module was subsequently revised on the basis of student performance. Testing was cumulative, so that the students who tested the preliminary version of Module 4 had previously worked through Modules 1, 2 and 3. When the six modules were tested and revised, the second version of the cards was prepared by New Century of Appleton-Century-Crofts. The revised version of the tapes, however, was made at the project's office, since it was considered vital that the Negro, non-standard speech samples represent the language of the student population. This second version of the program was the subject of the evaluation reported in Part II below.

Part II: Evaluation of the Program

The purpose of the field testing was to collect information relevant to revising and developing the program. Observations were required which described how the students performed during the course of instruction and how effective that instruction was in producing the desired changes in speech behavior. Therefore, an experiment was designed which provided for extensive observation of student performance during the administration of the program and for a comparison between the performance of the instructed group and a control group of students on a test designed to assess the objectives of the program.

The evaluation was based on the behavioral objectives developed for the units (sequences within modules) of the program. Since each sequence was designed to accomplish a stated behavioral objective, it was possible to describe the outcome of each instructional sequence by observing students' behavior on criterion frames at the end of sequences and by comparing that observed level of performance to the expected criterion level. The behavioral objectives, stated for the sequences and modules of the program, also served as the basis for the test items used to compare the experimental and control students and thus to assess the effects of the instruction.

Although the field testing was not designed to evaluate the effectiveness of specific aspects of the instructional methods used (e.g., the relative effectiveness of different modes, or the effects

of having the option of replaying samples and instructions), observations relevant to some of these questions were made suggesting areas of possible future research.

1. Method

Students. Twenty-four Negro children were selected from the fifth grades in two inner-city elementary schools where previously conducted research had confirmed the existence of BNNE. In each school, six boys and six girls were randomly selected from the members of a fifth-grade class who had the following characteristics: (a) average reading achievement (scores ranged from 3.2 to 4.8 on the Stanford Reading Achievement Test); (b) average IQ (scores ranged from 87 to 109 on the Lorge-Thorndike Intelligence Test); and (c) no records of excessive absences (more than four days per month) in the period January-March, 1969. For the experiment then, three boys and three girls from each school were randomly assigned to an experimental group, and three boys and three girls to a control group.

Experimental materials. The experimental materials consisted of the revised program and the tape recorded mastery test. The general characteristics of the program and the means for presenting it have been described in Part I. The behavioral objectives stated for each instructional sequence within Modules 2-6 provide an additional, more detailed description of student performance required by the program (see Appendix B).

The mastery test, which is included in Appendix A, consists of 14 parts. Each part is made up of several items which test a behavioral objective of the program. The behavioral objectives as

stated for the program were adjusted so that the stimulus situation could be presented by a tape recorder and an accompanying test booklet. As many elements of the stimulus situation in the program as possible were maintained and the required response was the same as that required by the program criterion frames. After the test was administered to four pilot students, the items underwent some small revisions and were then recorded by trained Negro and white speakers.

Procedure. Administration of the program required six days in each school, and two additional days were used for administration of the mastery test. Both schools set aside a small room in which the equipment was installed for program administration. Each student in the experimental group came to the room each day for approximately thirty minutes during which he completed one module. If a student were absent one day, he took two lessons the following day, one in the morning and one in the afternoon.

Although the presentation of the program materials did not require the presence of an experimenter, members of the project staff rotated so that an adult was always present recording student responses to each frame. Observations were written on code sheets prepared for each frame and, in addition, responses to criterion production frames were recorded on a tape recorder.

The mastery test was administered to the students individually by either a white male or a white female experimenter.[3] The experimenter explained that there were some recorded questions that the student was

[3]Experimenter was included as a blocking variable in the design so that both experimenters tested six control and six experimental students.

to answer and that his answers would be recorded on another tape recorder. The microphone was positioned and tested for recording level, then the test tape was begun. The experimenter stopped the tape at each point a student response was required.

If the student made an uncodable response (e.g., "I don't understand," or an inappropriate answer which suggested that he had not understood the instructions) after the first item within a part, the experimenter replayed the instructions and proceeded. No assistance was given following uncodable responses on later items within parts.

The experimental group received the mastery test on the seventh day of the experiment; the control group received it on the eighth day.

2. Results and discussion

Effects of instructional treatment. The effectiveness of the entire program was assessed with the mastery test, which was given to both the group of students who received the instruction and to the control group. Students received separate scores for each of the 14 parts of the mastery test. A student's score for one part was the proportion of his scoreable responses to items within that part which were correct. His total score was the sum of these 14 proportions.

A 2 x 2 x 14 repeated measures analysis of variance was performed on the results of the test to assess the effects and interactions of the experimental-control conditions, schools, and the 14 test parts on observed variation in test performance. Results show that the students who participated in the programmed instruction performed

significantly better on the mastery test than the control group ($F = 8.75$, d.f. 1, 20, $p < .01$). The only other significant effect is attributable to test parts ($F = 4.62$, d.f. 13, 260, $p < .01$) and simply indicates that some parts of the test were more difficult than others for all twenty-four students tested. The overall effectiveness of the program is supported by the fact that there was no significant interaction between test parts and experimental conditions. No one part of the test (or one objective within the program) is significantly better than any other part for discriminating between the experimental and control group.

Empirical observation of instructional treatment. The program included a series of instructional sequences, each of which had a specific behavioral objective. The frames at the end of each sequence required the students to perform the criterion behavior for the objective of that sequence. Therefore, in order to determine whether the intended instructional treatment actually occurred, the students' performance was observed on several frames at the end of each sequence and their observed level of performance (frame error rate) was compared to the criterion level of performance expected on the frames at the end of that sequence. In other words, the extent to which students mastered the objectives of each sequence in the program was used to describe the instructional treatment.

The data for evaluating all of the instructional sequences in Modules 2, 3, 4, 5, and 6 are presented in Appendix B. An illustration of the evaluation procedure can be shown with Table 1, which presents the data for the first two sequences in Module 6. The objectives of these sequences concern the production of noun plurals.

TABLE 1

Sample of Performance Data on Sequence Criteria

Descriptions of Criterion Performance for Sequences in Module 6	Criterion Frames		Criterion Performance		Equivalent Mastery Test Items		
	Frame No.	Errors/ Frame	Proportion Frames Expected Correct	Proportion Students Reaching Criterion	Part No.	Mean % Correct Experiment Group	Mean % Correct Control Group
1. Given a modified singular noun whose SE plural form requires a vowel change and instructions to substitute a given plural modifier, S produces the new modifier and the SE plural form of the noun.	28a	1	6/8	12/12	10a	87.5	69.6
	28b	3					
	29a	0					
	29b	1					
	30a	0					
	30b	2					
	31a	0					
	31b	0					
2. Following the repetition of a sentence with an -sses or -shes plural, and given a sentence with an -sks or -sts plural with instructions to repeat S produces -sks and -sts sounds embedded in sentence.	49	6	2/2	3/12	10b	37.5	8.3
	50	9					

The criterion performance required at the end of the first sequence is the production of nouns which require a vowel change in their standard plural form. The criterion performance required at the end of the second sequence is the production of plurals ending in -sks or -sts (e.g., masks or masts). The explicit statement of both behavioral objectives can be seen in column one. The numbers of the frames within the program that were designated as the criterion frames for these two behavioral objectives, and the errors made by the twelve students on these frames are shown in the second and third columns.

Frames 28, 29, 30, and 31 were double VOR frames (i.e., required two oral production responses). Thus the task of sequence one was presented twice in each frame, eight times in all. The criterion level set for this performance, which is shown in column four, requires that at least six out of eight of the produced plural nouns be in standard form. The fifth column shows that all twelve of the students met this criterion. Frames 49 and 50 were used to assess the students' performance on the objective of sequence two. The criterion level for this task was 100% (i.e., the responses to both frames were expected to be correct). The error rate on these frames was high, however, and only three of the twelve students reached the established criterion.

Additional information about the success of some of the instructional sequences is found in the students' performance on the mastery test. Items on that test which were equivalent to a task at the end of a sequence were combined and the mean proportion of those items which were correct for the students receiving the instruction was

compared to the mean proportion correct for the control group. These mean proportions correct are presented in Appendix B for all of the sequence and module objectives that were assessed with the mastery test. Table 1 shows the proportions correct for the two groups on the items equivalent to the behavioral objectives for sequence one and two in Module 6.

The information presented in Table 1 can be used to describe and evaluate the first two sequences in Module 6. The first sequence was apparently successful; all of the twelve students produced at least six out of eight standard plurals which required vowel changes. On equivalent items on the mastery test, the instructed group performed this task better than the control group. The second sequence was less successful. The performance of the students on frames 49 and 50, though perhaps better than if they had had no instruction, was not satisfactory. Only three of the twelve were able to produce the -sts and -sks sequences in noun plurals under the described eliciting conditions. Thus, student performance did not reach the criterion, and sequence two needs revision before it can be considered an effective part of the intended instructional treatment.

Similar descriptions and assessments were made for all sequences within the program. Unfortunately, the amount of available data is not the same for all sequences. Due to the limitations imposed by the procedure for administering the mastery test, not all sequence criteria have equivalent mastery test items. Also, since some sequences were more amenable than others to a long series of criterion frames, sequences have varying numbers of frames which can be used to assess the extent of a student's mastery of a particular behavioral

objective. However, although the assessment of student performance on some objectives is better than others, there is some information available for all sequences, and the reader who is interested in a precise description of how the students performed throughout the course of instruction is invited to look through Appendix B where all of the information concerning the students' mastery of sequential behavioral objectives is presented.

Before presenting a general overview of the results of the analysis of the data in Appendix B, it is necessary to point out two important considerations which affected an interpretation of the error rates on criterion frames. There are at least two important factors underlying error rate, apart from the adequacy of the instructional sequence. One is the variability of students' responses to criterion frames designed to measure an objective. The objective of sequence 2a in Module 5, for example, is assessed with two 'comparable' production frames. Only one of the twelve students made an error on the first; ten of the twelve made an error on the second. Although this sort of variability within a given set of criterion frames can be partially attributed to the subtle effects that are imposed on speech production by the phonological and syntactical environments which change from one frame to the next, it, nevertheless, interferes with the adequacy of using only two or three criterion frames to assess a given objective.

Another factor which accounts for variability in error rate is individual student differences in entering capabilities or learning aptitude. The median number of errors made by a student in all of

the 86 criterion responses was 24. The range, however, went from only 15 errors for student #1 to 40 errors for student #2. In other words, although the errors on the criterion frames at the end of sequences are indicators of the success of the instructional sequence, they are not precise, reliable measurements.

The analysis of the errors on criterion frames generally indicated that Modules 4 and 6 were successful (i.e., at the end of these modules, students were able to produce final consonant clusters ending in -sks, -sts, -nts and -nds, and were able to change singular nouns into standard plural forms). Furthermore, the instructed students performed these speech behaviors better than the control group on the mastery test. Modules 3 and 5 apparently need some revision. There was a large number of errors on the module criterion frames. It is encouraging to notice, however, that the instructed group is still outperforming the control group on these tasks. The least successful module is apparently Module 2 which was intended to develop the concepts of 'Formal' and 'Casual' English and link them to situations as appropriate or inappropriate. There is a high error on criterion frames and only small differences between the experimental and control groups on the equivalent mastery test items. Revision of Module 2 is planned. Also, continual review of these concepts will be spaced throughout the entire program as the students become more familiar with grammatical attributes which can be used to distinguish 'Formal' and 'Casual' speech.

The observations then, despite the measurement problems inherent in the criterion frames, are useful for detecting relatively successful and unsuccessful aspects of the program and for describing the extent to which the intended instruction occurred.

Students' use of equipment. The field testing was designed to test the effects of the entire instructional program. The effects attributable to the method of presentation, the program content, the style of frame writing, the specific student problems and a host of other possible interacting factors are inextricably confounded in the assessed effect of the entire program.

In order to test the effectiveness of particular features, carefully designed experiments using specially constructed programs are required. Unfortunately, the cost in terms of time, personnel and public school cooperation of such a testing program is prohibitive; so, although questions concerning the effectiveness of specific features are important for making generalizations in constructing new programs and for judging the cost and practicality of this instruction, data are not available for making these assessments.

Despite the absence of such assessments, it is felt that three features of the presentation device warrant some consideration. Therefore, observations which are simply descriptions of how the twelve students used the equipment will be reported. The three features of the instruction concern: (a) students' use of the opportunity in certain modes to repeatedly replay auditory samples, instructions and choice alternatives; (b) the frequency with which corrective information was presented following student errors; and (c) the accuracy of students' oral productions in the absence of a live teacher-evaluator. The first two aspects considered are costly features of the equipment, the third, a pedagogically questionable feature.

The data compiled for these observations consist of records of responses made to each frame in Modules 2-6 (excluding presentation frames) by the twelve children in the instructed group. The stimulus situation presented by each frame was analyzed according to the presence or absence of the following attributes: $\pm$ sample (auditory, visual, auditory and visual); $\pm$ instruction (auditory, visual, auditory and visual); $\pm$ alternatives (auditory or visual, if visual two or three); $\pm$ oral production response (one or two, each being $\pm$ model or instruction, and $\pm$ confirmation). The occurrence and sequence of each student's optional responses (choice, correct or incorrect; replay of sample or of auditory alternatives) and of his oral production responses (correct or incorrect) were also recorded for each frame.

The first feature considered was the replaying of samples and instructions. During the five modules, a student had 195 opportunities to push a lighted button and hear a repetition of the sample or instruction. The median number of times students actually pushed this button was 15, or 1 out of 12 times that it was available. The range of use varied greatly, however; one student never used it, another used it 36 times. An observation on when it was used reflects the somewhat careful approach used by the students when making choices in the program. Approximately one-third of the sample replay responses occurred following errors, while two-thirds occurred before students made their choice of the correct alternative.

Another response option open to the students was the replaying of auditory alternatives. This option was used even less frequently than the sample replay. It was available 108 times and the median

number of times it was used was 5.5 or used approximately 1 out of 20 times that it was available. The frequency of use among the twelve students varies, however, ranging from 0 to 22. Just as with the sample replay, approximately two-thirds of the replayed auditory alternatives occurred before students made a choice while one-third occurred after they made errors.

In reviewing the students' use of the optional responses it is evident that the presentation device was flexible in accommodating to individual response patterns (62 different patterns were observed in all). However, it is also clear that the students' responses to most of the frames did not require this flexibility. Of the 2,112 observed responses to discrimination frames only 258 of them, approximately one-eighth, involved the replay of a sample, instruction or auditory alternative.

Another feature of the presentation device that may add to its effectiveness is the provision of corrective information following an incorrect choice. There is considerable discussion concerning the role of errors and of corrective feedback in programmed instruction (Glaser, 1965). A relevant study which suggests that students may be particularly receptive to information following an error was conducted by Geis, Jacobs and Spenser (1968). That study showed that students check more answers following an error than following a correct response. Skinner's work, however, has emphasized the importance of error-free responding and confirmation in an efficient instruction process. The observations made during the field test do not help to

resolve the controversy but do attest to the fact that errors did occur in the program and that each student heard an average of 24.5 corrections as he worked through Modules 2-6.

The third aspect considered is the accuracy of the students' oral production during the course of instruction. The presentation device does not include a monitoring system to evaluate these responses; any sound of sufficient intensity will trigger the voice-operated relay and advance the program. The students' responses were tape recorded, however, so that a record of the accuracy of the unmonitored oral productions was available. This record showed that 81% of all the students' oral productions were accurate. By comparison, the performance of the control group on somewhat similar production tasks was only 62% accurate.

Eliciting conditions were examined in hopes of identifying conditions which might be related to the accuracy of oral production. In light of Holland and Matthews' (1963) finding concerning the relationship of discrimination training to accurate articulation, the proportion of accurate production responses which followed discrimination tasks was computed. As expected, the proportion of accurate oral responses following correct discriminations was high, .91, while the proportion following incorrect discrimination, .83, was close to the overall mean. Another observation showed that echoic productions were somewhat more accurate (.83) than productions which required the student to perform an operation (e.g., change to plural) on the provided sample (.76). These observations suggest conditions which may be related to accurate productions, but controlled experiments are needed to identify factors which facilitate accurate oral production.

User's evaluation. Since the program is in such an early stage of development, it seemed premature to request evaluative judgements from teachers and administrative personnel. The students' positive reaction was demonstrated, however, by a few indicators: (a) no loss of subjects due to absenteism during the six day testing period; (b) many students' requests to take additional lessons after the completion of Module 6; and (c) the students' punctuality and cooperativeness throughout the testing.

3. Summary and conclusions

The purpose of the field testing was to provide information relevant to revising and developing the self-instructional program. Twenty-four fifth-grade Negro children were randomly assigned to one of two groups. One group received the program; the other, a control group, remained in their regular classrooms. Following the program, a mastery test designed to assess the behavioral objectives of the program was administered to both groups. The experimental group performed significantly better than the control group, demonstrating the effectiveness of the overall program.

The performance of the experimental group on the criterion frames in the program was also observed and the level of mastery of each sequential objective assessed. These observations, combined with the information from specific items on the mastery test, provided the information necessary to evaluate each instructional sequence in the program and make suggestions for revisions.

Although experimental evidence was not available for assessing the effects of particular features of the instructional method, observations were reported describing how the students used three features of the presentation device:

(a) It was observed that the average use of the optional replaying of auditory samples, instructions and alternatives was small, but that there was a large variability among the students in their tendency to request these auditory replays.

(b) The recorded information in the 'correction channels' of the program was frequently presented to the students and was, therefore, possibly an important feature of the instructional method.

(c) The oral productions, unmonitored by the teaching device, tended to be accurate (i.e., 81% were judged correct by the monitoring staff members).

REFERENCES

Allen, V. F. Teaching standard English as a second dialect. In A. H. Passow (Ed.), Developing Programs for the Educationally Disadvantaged. New York: Teachers College Press, 1968. Pp. 207-224.

Buck, J. F. The effects of Negro and white dialectal variations upon attitudes of college students. Speech Monographs, 1968, 35 (2), 181-186.

Garvey, C. & McFarlane, P. T. A preliminary study of standard English speech patterns in the Baltimore City public schools. Baltimore: The Johns Hopkins University, Center for the Study of Social Organization of Schools (Report No. 16), 1968.

Geis, G. L., Jacobs, W. & Spenser, D. The role of the printed answer in programmed instruction. In Studies in language and language behavior. Ann Arbor, Michigan: The University of Michigan, Center for Research on Language and Language Behavior (Progress Report No. 1), 1965.

Glaser, R. Toward a behavioral science base for instructional design. In R. Glaser (Ed.), Teaching machines and programmed learning, II. Washington, D. C.: National Education Association, 1965. Pp. 771-809.

Guthrie, J. T. & Baldwin, T. L. Effects of discrimination, grammatical rules and application of rules on the acquisition of language concepts in children. Baltimore: The Johns Hopkins University, Center for the Study of Social Organization of Schools (Report No. 45), 1969.

Holland, A. L. & Matthews, J. Application of teaching machine concepts to speech pathology and audiology. Asha, 1963, 5, 474-482.

Joos, M. The five clocks. New York: Harcourt, Brace & World, 1967.

Labov, W. The social stratification of English in New York City. Washington, D. C.: Center for Applied Linguistics, 1966.

Labov, W. & Robins, C. A note on the relation of reading failure to peer-group status in urban ghettos. Teachers College Record, 1969, 70, 395-405.

Putnam, G. N. & O'Hern, E. M. The status significance of an isolated urban dialect. Language, 1955, 31 (4 part 2), 1-32.

Stewart, W. A. An outline of linguistic typology for describing multilingualism. In F. A. Rice (Ed.), Study of the role of second languages in Asia, Africa, and Latin America. Washington, D. C.: Center for Applied Linguistics, 1962. Pp. 15-25.

Tucker, G. R. & Lambert, W. E. White and Negro listeners' reactions to various American-English dialects. Social Forces, 1969, 47, 463-468.

APPENDIX A

Program Mastery Test

Module 2

Part 1: Listen to these two sentences. Tell me if they sound the same or if they sound different.

Me and George will play. (V1)[1]

George and I will play. (V1) _____

Same or different?

I want those red ones. (V1)

I want them red ones. (V1) _____

Part 2: Listen to the sentence. Tell me if it sounds like formal speech or casual speech.

He won't buy nofin'. (V1) _____

Formal or casual?

I may not read any more today. (V1) _____

Part 3: Here is a picture. Listen to these two sentences. If the first sentence fits the picture, circle 1. If the second sentence fits the picture, circle 2.

(card: picture of boy and doctor, 1, 2)

My brother and I were both sick. (V1)

Me and my brover was bof sick. (V1) _____

Which sentence fits this picture?

(card: picture of two boys talking, 1, 2)

He ain't my frien', man. (V1)

He isn't my friend. (V1) _____

[1]Throughout the mastery test (V1) indicates that the preceding utterance was recorded by the young, Negro, bi-dialectal speaker. All unmarked utterances were recorded by the standard teacher voice.

Module 2 - Continued

Part 3 - Continued

Which sentence fits this picture?

(card: picture of boy and principal, 1, 2)

I won' say i' no more. (V1)

I won't say it any more. (V1) _____

Module 3

Part 4: You will hear a word. You add /ə/ or /əN/ and say the phrase: for example, if you hear orange, you say /əN/ orange. If you hear grape, you say /ə/ grape. Here is the first word:

elephant _____

answer _____

question _____

street _____

ocean _____

rabbit _____

uncle _____

boy scout _____

Part 5: Now you will hear a sentence. You will be asked to change a word and repeat the sentence. Here is an example: Susie has a dog. Change dog to cat and say the sentence._____ You should have said: Susie has a cat. Now, listen:

Sam chased a dog. Change dog to Indian. _____

He heard a sound. Change sound to echo. _____

The man threw a tomato. Change tomato to egg. _____

They rode in an airplane. Change airplane to truck. _____

We had a discussion. Change discussion to argument. _____

Module 4

Part 6: (card: arrest) Repeat this word: arrest. _____

(card: risk) Repeat this word: risk. _____

Module 4 - Continued

Part 7:[2] (card: artists, artist) Here are two words. Listen. Circle the one that you hear: artists _____

(card: artists) Repeat this word: artists. _____

(card: mask, masks) Here are two words. Listen. Circle the one that you hear: masks. _____

(card: masks) Repeat this word: masks. _____

Part 8: Repeat these sentences.

(card: gift) The puzzle was a gift. _____

(card: tents) We will sleep in tents. _____

(card: friends) I play ball with my friends. _____

Part 9:[3] Repeat this word: bowl. _____

Repeat this sentence: She broke a bowl. _____

Repeat: help. _____

Repeat: Give him some help. _____

Repeat: cold. _____

Repeat: The day was cold. _____

Colts. _____

The Rams beat the Colts. _____

goals. _____

He made two goals. _____

colds. _____

You take aspirin for colds. _____

words. _____

I don't know those words. _____

---

[2]The discrimination and production tasks were scored as two separate parts for purposes of analysis.

[3]The productions of single words and sentences were scored as two separate parts for purposes of analysis.

Module 5

Part 10: In the next items you will be asked to say sentences with plural nouns. Here is an example: They shot one wild goose. Change one to three and say the sentence. _____
You should have said: They shot three wild geese. Now, listen:

The cat caught one mouse. Change one to two. _____

He lost a tooth. Change a to some. _____

They have one child. Change one to four. _____

The police arrested one woman. Change one to six. _____

He picked a rose. Change a to some. _____

Mother bought one roast. Change one to two. _____

The teacher moved one desk. Change one to four. _____

He found a knife. Change a to some. _____

Part 11:[4] Listen to two sentences. One sentence is in formal speech and one is in casual speech. If the first sentence is casual speech, circle 1. If the second sentence is casual speech, circle 2.

(card: 1,2)

He saved two women. (V1)

He saved two womens. (V1) _____

Now change this casual sentence to formal speech.

He saved two womens. (V1) _____

Circle the number of the sentence which is in casual speech.

(card: 1, 2)

He broke two teefs. (V1)

He broke two teeth. (V1) _____

Now change this casual sentence to formal speech.

He broke two teefs. (V1) _____

[4]The discrimination and production tasks were scored as two separate parts for purposes of analysis.

Module 5 - Continued

Part 11 - Continued

Circle the number of the sentence which is in casual speech.

(card: 1, 2)

Tha's enough for two childs. (V1)

That's enough for two children. (V1) _____

Now change this casual sentence to formal speech.

Tha's enough for two childs. (V1) _____

APPENDIX B

Student Performance on Sequence and Module Criteria

1. Module 2

Descriptions of Criterion Performance	Criterion Frames		Criterion Performance		Equivalent Mastery Test Items		
	Frame No.	Errors/ Frame	Proportion Frames Expected Correct	Proportion Students Reaching Criterion	Part No.	Mean % Correct Experiment Group	Mean % Correct Control Group
SEQUENCE CRITERIA 1. Given a sample utterance, two utterances which differ in form, and instructions to match, choose the utterance which matches the sample in form.	20 21 22 23	3 1 3 4	3/4	8/12	1	95.8	75.0
2. Given question <u>casual or formal</u>? and a sample utterance, S says <u>formal</u> if the sample is formal and <u>casual</u> if the sample is casual.	37 38 39	5 3 3	3/3	5/12	2	75.0	75.0

1. Module 2 - Continued

Descriptions of Criterion Performance	Criterion Frames		Criterion Performance		Equivalent Mastery Test Items		
	Frame No.	Errors/ Frame	Proportion Frames Expected Correct	Proportion Students Reaching Criterion	Part No.	Mean % Correct Experiment Group	Mean % Correct Control Group
SEQUENCE CRITERIA (continued)							
3. Given a casual picture with a casual utterance or a formal picture with a formal utterance and instructions to choose appropriate or inappropriate, S chooses appropriate.	62 64	6 6	2/2	3/12	3	72.8	62.5

1. Module 2 - Continued

Descriptions of Criterion Performance	Criterion Frames		Criterion Performance		Equivalent Mastery Test Items		
	Frame No.	Errors/ Frame	Proportion Frames Expected Correct	Proportion Students Reaching Criterion	Part No.	Mean % Correct Experiment Group	Mean % Correct Control Group
MODULE CRITERIA							
1. Given a picture of a situation, two utterances (one formal, one casual) and instructions to choose the appropriate utterance, S chooses the formal utterance in the presence of a formal picture and a casual utterance in the presence of a casual picture	65	2	2/2	10/12			
	66	2					
2. Following the above discrimination and a repetition of the appropriate utterance, S says the appropriate utterance.	65	1	2/2	8/12			
	66	3					

2. Module 3

Descriptions of Criterion Performance	Criterion Frames		Criterion Performance		Equivalent Mastery Test Items		
	Frame No.	Errors/ Frame	Proportion Frames Expected Correct	Proportion Students Reaching Criterion	Part No.	Mean % Correct Experiment Group	Mean % Correct Control Group
SEQUENCE CRITERIA							
1a. Given an aural presentation of a vowel-initial noun, visual alternatives <u>a</u> and <u>an</u>, and instructions to choose, S chooses <u>an</u>. Given same context with consonant-initial noun, S chooses <u>a</u>.	33	4	3/3	5/12			
	34	3					
	35	1					
1b. Following the above discrimination and hearing the noun phrase with the appropriate form of the indefinite article, S says the noun phrase.	33	0	3/3	11/12			
	34	1					
	35	0					

2. Module 3 - Continued

Descriptions of Criterion Performance	Criterion Frames		Criterion Performance		Equivalent Mastery Test Items		
	Frame No.	Errors/ Frame	Proportion Frames Expected Correct	Proportion Students Reaching Criterion	Part No.	Mean % Correct Experiment Group	Mean % Correct Control Group
SEQUENCE CRITERIA (continued)							
2. Given phrase: a vowel-initial word and instructions to say the formal, S says an vowel-initial word.	47	0	2/2	11/12			
	48	1					
MODULE CRITERIA							
1. Given a noun phrase and instructions to add a or an, S says the whole phrase in Standard form.	55a	2	5/6	7/12	4	89.2	65.5
	55b	4					
	56a	2					
	56b	4					
	57a	0					
	57b	1					

2. Module 3 - Continued

Descriptions of Criterion Performance	Criterion Frames		Criterion Performance		Equivalent Mastery Test Items		
	Frame No.	Errors/ Frame	Proportion Frames Expected Correct	Proportion Students Reaching Criterion	Part No.	Mean % Correct Experiment Group	Mean % Correct Control Group
MODULE CRITERIA (continued)							
2. Given a sentence and instructions to substitute a vowel-initial word for a consonant-initial word, S says the sentence substituting the word and changing a to an.	64	4	2/2	6/12	5	75.3	67.7
	65	2					
3. Given a picture and instructions to name it, S says the pictured noun with the formal indefinite article.	68	3	2/2	7/12			
	69	3					

3. Module 4

Descriptions of Criterion Performance	Criterion Frames		Criterion Performance		Equivalent Mastery Test Items		
	Frame No.	Errors/ Frame	Proportion Frames Expected Correct	Proportion Students Reaching Criterion	Part No.	Mean % Correct Experiment Group	Mean % Correct Control Group
SEQUENCE CRITERIA							
1a. Given a written word ending in -st or -sk, an aural presentation of the same word and instructions to repeat, S says the word producing the final consonant sound.	16 17 18	1 1 2	3/3	10/12	6	83.3	79.2
1b. Following the production of the word in 1-a, the word is presented in a sentence with instructions to repeat, S repeats the sentence producing the final consonant sound on the embedded word.	16 17 18	1 5 5	3/3	3/12			

3. Module 4 - Continued

Descriptions of Criterion Performance	Criterion Frames		Criterion Performance		Equivalent Mastery Test Items		
	Frame No.	Errors/ Frame	Proportion Frames Expected Correct	Proportion Students Reaching Criterion	Part No.	Mean % Correct Experiment Group	Mean % Correct Control Group
SEQUENCE CRITERIA (continued)							
2a. Given an audio and visual presentation of a word (artists, masks) and instructions to repeat, S says the word producing final consonant sounds.	35 37	7 4	2/2	3/12	7	62.5	45.8
2b. Following the production and confirmation of an -sks word in isolation, S, given an audio presentation of the word in a sentence and instructions to repeat, says the sentence producing the final consonant sounds of the embedded -sks word.	38	3	1/1	9/12			

3. Module 4 - Continued

Descriptions of Criterion Performance	Criterion Frames		Criterion Performance		Equivalent Mastery Test Items		
	Frame No.	Errors/ Frame	Proportion Frames Expected Correct	Proportion Students Reaching Criterion	Part No.	Mean % Correct Experiment Group	Mean % Correct Control Group
SEQUENCE CRITERIA (continued)							
3a. Given a written word ending in -ft, an audio presentation of the same word and instructions to repeat, S says the word, producing the final -ft sounds.	46	0	1/1	12/12			
3b. Following the production of the word in 3a, the word is presented in a sentence with instructions to repeat, S says the sentence producing the final -ft sounds on the embedded word.	46	3	1/1	9/12	8a	83.3	41.7

3. Module 4 - Continued

Descriptions of Criterion Performance	Criterion Frames		Criterion Performance		Equivalent Mastery Test Items		
	Frame No.	Errors/ Frame	Proportion Frames Expected Correct	Proportion Students Reaching Criterion	Part No.	Mean % Correct Experiment Group	Mean % Correct Control Group
SEQUENCE CRITERIA (continued)							
4a. Given a visual presentation of a sentence with a word ending in -nts or -nds, two audio alternatives (one SE and one BNNE), and instructions to choose the formal pronunciation, S chooses the SE alternative.	59 60	1 1	2/2	10/12			
4b. Following 4a, and given an audio presentation of the sentence with instructions to repeat, S says the sentence producing the final consonants -nts or -nds.	59 60	1 0	2/2	11/12	8b	91.7	83.3

3. Module 4 - Continued

Descriptions of Criterion Performance	Criterion Frames		Criterion Performance		Equivalent Mastery Test Items		
	Frame No.	Errors/ Frame	Proportion Frames Expected Correct	Proportion Students Reaching Criterion	Part No.	Mean % Correct Experiment Group	Mean % Correct Control Group
MODULE CRITERIA (Reviews Sequences 2 and 4)							
2a. -sks discrimination.	61	1	1/1	11/12			
2b. -sks production.	62	8	1/1	4/12			
4a. -nds discrimination.	63	1	1/1	11/12			
4b. -nds production.	64	1	1/1	11/12			

4. Module 5

Descriptions of Criterion Performance	Criterion Frames		Criterion Performance		Equivalent Mastery Test Items		
	Frame No.	Errors/ Frame	Proportion Frames Expected Correct	Proportion Students Reaching Criterion	Part No.	Mean % Correct Experiment Group	Mean % Correct Control Group
SEQUENCE CRITERIA							
1a. Given a written word ending in -lp, -ld, or -lt, an audio presentation of the word and an instruction to repeat, S says the word producing the final consonant -lp, -ld, -lt sounds.	23 24 25	5 7 4	3/3	3/12	9a	75.0	47.2
1b. Following 1-a, given a sentence with the same word embedded and instructions to repeat, S says the sentence producing the final consonants on the embedded word.	23 24 25	9 4 2	3/3	3/12	9b	80.6	61.1

4. Module 5 - Continued

Descriptions of Criterion Performance	Criterion Frames		Criterion Performance		Equivalent Mastery Test Items		
	Frame No.	Errors/ Frame	Proportion Frames Expected Correct	Proportion Students Reaching Criterion	Part No.	Mean % Correct Experiment Group	Mean % Correct Control Group
SEQUENCE CRITERIA (continued)							
2a. Given a written word ending in -lds or -lts, an audio presentation of the word and instructions to repeat, S says the word producing the final consonant sounds -lds or -lts.	33 34	1 10	2/2	2/12	9c	52.8	19.4
2b. Following 2a, given a sentence with the same word embedded and instructions to repeat, S says the sentence producing the final consonants on the embedded word.	33 34	3 8	2/2	3/12	9d	50.0	25.0

4. Module 5 - Continued

Descriptions of Criterion Performance	Criterion Frames		Criterion Performance		Equivalent Mastery Test Items		
	Frame No.	Errors/ Frame	Proportion Frames Expected Correct	Proportion Students Reaching Criterion	Part No.	Mean % Correct Experiment Group	Mean % Correct Control Group
SEQUENCE CRITERIA (continued)							
3. Given picture prompt and audio sample with instructions to repeat, S says -rds word in sentence pronouncing the final consonant sounds.	48	0	1/1	12/12	9e	91.7	83.3
MODULE CRITERIA							
1. Given sample sentences with words ending in -st, -ft, -sk, -ls, -rds and -ld and two visual alternatives <u>casual</u> and <u>formal</u>, S chooses casual if the sentence is in BNNE and formal if it is in SE.	51	9	5/6	3/12			
	53	2					
	55	2					
	57	8					
	59	3					
	60	2					

4. Module 5 - Continued

Descriptions of Criterion Performance	Criterion Frames		Criterion Performance		Equivalent Mastery Test Items		
	Frame No.	Errors/ Frame	Proportion Frames Expected Correct	Proportion Students Reaching Criterion	Part No.	Mean % Correct Experiment Group	Mean % Correct Control Group
MODULE CRITERIA (continued)							
2. Following 1, given the sample again and instructions to change it to formal or casual, S says sentence changing it to SE or BNNE.	52	7	4/5	5/12			
	54	2					
	56	2					
	58	2					
	61	7					

5. Module 6

Descriptions of Criterion Performance	Criterion Frames		Criterion Performance		Equivalent Mastery Test Items		
	Frame No.	Errors/ Frame	Proportion Frames Expected Correct	Proportion Students Reaching Criterion	Part No.	Mean % Correct Experiment Group	Mean % Correct Control Group
SEQUENCE CRITERIA							
1. Given a modified singular noun whose SE plural form requires a vowel change and instructions to substitute a given plural modifier, S produces the new modifier and the SE plural form of the noun.	28a 28b 29a 29b 30a 30b 31a 31b	1 3 0 1 0 2 0 0	6/8	12/12	10a	87.5	69.6
2. Following the repetition of a sentence with an -sses or -shes plural, and given a sentence with an -sks or -sts plural with instructions to repeat, S produces -sks and -sts sounds embedded in sentence.	49 50	6 9	2/2	3/12	10b	37.5	8.3

5. Module 6 - Continued

Descriptions of Criterion Performance	Criterion Frames		Criterion Performance		Equivalent Mastery Test Items		
	Frame No.	Errors/ Frame	Proportion Frames Expected Correct	Proportion Students Reaching Criterion	Part No.	Mean % Correct Experiment Group	Mean % Correct Control Group
SEQUENCE CRITERIA (continued)							
3a. Given modified singular noun whose SE plural requires a consonant change (-f to -ves) and instruction to substitute a given plural modifier, S says plural, -ves.	59 60	3 2	2/2	7/12	10c	83.3	66.7
3b. Given sentence with -ves plural and instructions to repeat, S says -ves in sentence.	59 60	0 1	2/2	11/12			
3c. Given an audio sample with instructions to complete the saying, S produces lives.	62	2	1/1	10/12			

5. Module 6 - Continued

Descriptions of Criterion Performance	Criterion Frames		Criterion Performance		Equivalent Mastery Test Items		
	Frame No.	Errors/ Frame	Proportion Frames Expected Correct	Proportion Students Reaching Criterion	Part No.	Mean % Correct Experiment Group	Mean % Correct Control Group
MODULE CRITERIA 1. Given two audio alternative sentences (one with BNNE plural and the other with SE form) and instruction to choose the casual, S chooses sentences with BNNE.	61	2	1/1	11/12	11a	34.8	19.5
2. Following 1, and given the casual sentence with instructions to change the sentence to formal, S produces sentence with SE plural form.	61	2	1/1	11/12	11b	36.1	30.6